

sdmay19-12: Automatic Solder Dispenser

Status Report 14

February 11 - February 17

Client: Leland Harker

Team Members

Jason Austin – Software Lead

Justin Wheeler – Mechanical Lead

Zachary Bumstead – Electrical Lead

Kevin Carlson – Mechanical/Electrical Integrator

Trenton Allison – Software/Electrical Integrator

Samuel Willford – Report Manager and Meeting Facilitator

Summary of Progress this Report

- Designed and created 2-part coiler - Jason
 - This coiler revision has two parts
 - Allows us to clean up fragments better
 - Should run smoother
 - Has not been tested yet

- Added database auto cleaning - Jason
 - Every minute, the database checks for users that have been in the database for 20 minutes or more
 - It deletes these entries

- Created sensor state machine code - Jason
 - State machine is used to decide when a jam has occurred
 - Has not been tested yet

- Solder new driver board and sensor board - Trent
 - Both boards were soldered
 - Sensor board has minor issue with one diode/photoresistor pair
 - The voltage does not swing correctly
 - Seems to be a resistance problem, which indicates too much light getting through
 - A new sensor housing will be created
 - Driver board has several major issues
 - Motor 4 runs backwards
 - Relatively simple fix, need to swap two pins on PCB
 - Motor 2 and 3 are not working
 - Reasons unknown at this time
 - Capacitor/power loss backup is not working
 - Unsure if it is a software or hardware issue at this point
 - Most likely PCB issue

- Finished support brackets for spool brackets - Kevin
 - Spool brackets needed more support (for connecting to baseplate)
 - Simple right angle brackets were created
 - Installed plungers into spool holders - Justin
 - This forces the spool holder to stay in the bracket
 - Mounted driver PCB - Justin
 - Mounted an extra unsoldered driver PCB board into baseplate
 - Cut hole for power connector - Justin
 - Hole is located on back side of box
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Pending Issues

- None at this time
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Plans for Upcoming Reporting Period

- Troubleshoot and fix PCBs - Trent, Sam, Zach
 - Need to determine the cause of issues for both driver board and sensor board
 - If a new board needs to be made, we need to get it designed quickly
 - Cut lid and install screen - Kevin
 - Lid of box needs to be cut on mill
 - Need to be careful (We only have 1 lid!)
 - Create code for priming and retracting solder - Jason
 - When inserting a new roll of solder, the stepper motor must initially “calibrate”.
 - After each use, solder may need to retract a couple inches to avoid jams.
 - Safe shutdown development and testing - Jason
 - When power goes out, Pi needs to shutdown (safely)
 - Also needs to turn back on when power comes back
 - Jam detection and open box implementation - Jason
 - Use sensor board and ensure that jams are detected and an email is sent
 - Open box sensor should be implemented into code as well
 - Prepare for presentation/meeting with professor - Zach, Sam
 - Powerpoint needs to be edited
 - Need to confirm time and location and submit reports
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Individual Contributions

Team Member	Contribution	Weekly Hours	Total Hours
Sam Willford	Report 13, organizing professor meeting, creating powerpoint for professor meeting	5	130
Jason Austin	Created database auto clean code, created 2-piece coiler, designed sensor state machine	9	143
Trent Allison	Soldered Driver board and sensor board	6	124.5
Justin Wheeler	Started mounting plate for jam sensor, mounted driver PCB, cut hole for power connector	8	115.5
Kevin Carlson	Finished supports for spool brackets, installed plungers into spool holders	4	82
Zach Bumstead	Creating powerpoint for meeting with professor	8	95